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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/829,574	04/22/2004	Mani Sundaram	20030126-CIP	6714
42716	7590	02/21/2007	EXAMINER	
MAINE & ASMUS P. O. BOX 3445 NASHUA, NH 03061			JACKSON JR, JEROME	
			ART UNIT	PAPER NUMBER
			2815	
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE		
3 MONTHS	02/21/2007	PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/829,574	SUNDARAM ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Jerome Jackson Jr.	2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 30 June 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-6,9-17,19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-6,9-17,19 and 20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____   | 6) <input type="checkbox"/> Other: _____                          |

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-6,8-17,19 and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The device is not considered enabled because figures 9a and 9b show energy levels continuous across all of the wells where absorptions apparently are equal across the entire device, i.e. there is no apparent distinction between the well absorptions. The wells appear to be able to absorb the exact same photon energies. Also the Fermi energy is straight across the device whereas there is supposedly a bias across the device. The energy levels across the device also apparently show the wells to be "coupled" as a superlattice. The exact structure of the device is not clear from the description in the drawing. The description in the specification appears to be different from the drawings. Clarification is required. The structure of the well spike is not enabled. What is its exact structure and how does it adjust the lowest energy level without effecting the upper energy levels? How is such a structure made and what is the exact structure? The description states the well spike adjusts the lowest energy level of the red well. Is it adjusting the lowest energy level in both wells as the figures appear to show?

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6,8-17,19 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation "well spike ... having means for adjusting the ground state..." is vague and indefinite of exact structure. First, the structure of the "well spike" is vague and indefinite. What is its exact structure? Is it a quantum dot, what is its thickness, what exactly does it comprise? Secondly, what are the "means" and what exactly is the structure of the "means". Presumably the "spike" structure itself is the "means", however, it is unclear and without knowing the exact structure of the "well spike" the "means" is also vague and indefinite. Thirdly, it is unclear how the ground state of the well is adjusted without adjusting the other levels. Fourth, the exact structure of the claimed device is vague and indefinite as the exact well dimensions, spike dimensions, barrier dimensions, etc. are vague and indefinite.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-6,8-17,19 and 20, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin with Kuan, of record.

In view of the above rejections the claims are not seen to structurally distinguish over the art as previously applied. Additionally, the interior high bandgap layers of each of the superlattice detectors in Kuan are considered "well spikes" and accordingly the

claimed "well spike" being absent of any particular distinguishing claimed feature is not patentable. See figures 10-15 of Kuan.

Claims 1-6,8-17,19,20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin in view of Almogy.

The previous rejection still applies

Applicant's arguments filed 6/30/06 have been fully considered but they are not persuasive. Until the 35 USC 112 rejections are resolved the arguments are not considered convincing. Moreover, arguments regarding figure 7 of Kuan are basically moot as figures 10-15 are applied in the rejection.

In regard to Martin with Almogy, the broadness and vagueness and indefiniteness of the claimed "well spike" does not distinguish the claims over the applied art where Almogy's dopant spike is broadly a "well spike".

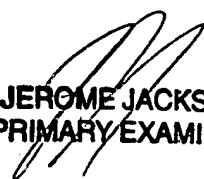
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerome Jackson Jr. whose telephone number is 571-272-1730. The examiner can normally be reached on M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jj



JEROME JACKSON  
PRIMARY EXAMINER